The Digital Divide and Behavioral Intention of ICT adoption for Health Information Among People in Rural Communities

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ABSTRACT
The purpose of this paper was to assess the basic knowledge of ICT among people in rural area. To determine the association between behavioral intention of ICT adoption and health information among people in rural communities**.** The study used a survey method to collect data from people in rural area. The results found that most people known about ICT and used mobile phone to communicate between each other. In addition, the hypothesis showed that there are 42 percent of people intent to used ICT for searching health information. The level of significance showed the p-value <.05.

Keywords: digital divide, health information, rural communities.

I INTRODUCTION

The world is rapidly changing in the field of technology. ICT is now a part of most peoples´ lives. It has changed lifestyles, communication, sources of competitive advantage, and opportunities for economic and social development (Opesade, 2011). There is a debate going on about the Internet if there is a digital divide between users and non-users; those who can access the internet and those who cannot (Kent, 2012). In addition, the digital divide is important to study and solve the problems of how gaps in ICT among countries have changed (Doong & Ho, 2012).

According to OECD (2001), the digital divide means the gap between people who have the opportunity to use computers and technology and those whose opportunities are limited or non-existent because of low incomes and/or through living in a rural area. Ruth (2012) states a digital divide is unfolding between those with access to a high speed capacity and quality to access information technology (IT) and those with lower speed and capacity and quality. Abdelfattah (2013), notes that the digital divide means the difference in opportunities between those in an urban environment and those in rural areas.

ICT is key to solving the problem of the digital divide in healthcare because ICT can help people to learn and use the technology to search for information about healthcare (Connolly, 2013). If people learn more about healthcare, they can care for themselves better (Dzenowagis, 2011).

Knowledge of health is important for people to learn about and prevent diseases. When people have the ability to access information about healthcare, they are more likely to engage in preventative behavior.

There are several health information studies available, for instance, the Kaiser Family Foundation (2011) states that web-based content, including the development of health information websites be done. The health information websites offer better understanding with regard to health care. It is for this reason that surfing websites for information about health can assist in health care needs.

Allison and Trauth (2013) report that health information depends on the socio-economic situation, the infrastructure of ICT and the ability of people to use ICT for searching out health information online. This study suggests that knowledge of health information can be beneficial to patients to get a better understanding and care for themselves.

Wang et al. (2011) point out the differences in Internet access among urban areas and rural areas. In addition, there was observed to be a medical limitation in the rural areas because of the geography and the lack of opportunity to access the Internet. Therefore, the subjects would not know about news and information about healthcare found online.

Amy (2011) examines the differences in the health information seeking behavior of rural, suburban and urban Internet users. There is a difference in the information seeking behavior of the people in rural areas who use more books and other printed material than their urban and suburban counterparts. According to George et al., (2013), the knowledge gap that influences the effectiveness of telehealth technologies, produces confusion and fear potentially affecting a patient's confidence in quality of care and limiting their disease management ability. At that juncture the knowledge gap can be the digital divide of patients to care for themselves.

Information and Communication Technology (ICT) is a conveyance to bridge the gap of equality between urban and rural healthcare centers and to resolve the problems of the health sector (Ruxwana, Herselman, & Conradie, 2010). Knowledge of ICT is important

for people in rural areas when they wish to use ICT for searching out information on healthcare. However, they should receive training in how to use and access ICT.

Palvalin et al. (2013) analyze the impact of ICT on knowledge work productivity and found that ICT can be used to eliminate non-value adding tasks or to make them efficient. ICT can also improve employee welfare, ICT and knowledge work productivity by explaining how the impacts of ICT can be analyzed in a given empirical context.

Mohamed et al. (2010) state that knowledge of ICT could be a sustainable development and the understanding of ICT could be a valuable guidance of knowledge management practice in supporting sustainable development. Lee and Kelkar (2013) note knowledge of ICT can be used to support knowledge management in organizations. Knowledge of ICT is useful in organizations and the organization must be cognizant of the leadership style adopted by their knowledge to create value. Toro and Joshi (2013) report the essence of ICT, which is to open new avenues in knowledge and play an important role for sharing, exchanging and disseminating knowledge and ICT in higher education.

The objective of this paper as following.

1. To assess the knowledge of ICT from people in rural communities.
2. To determine the association between behavioral intention of ICT adoption and health information among people in rural communities.

II RESEARCH METHOD

This study employed survey research using a quantitative approach to collect the data from people in rural areas in the south of Thailand. The questionnaire was verified by three experts. One expert was from the psychology program from Walailak University and two other experts were from the computer education program and innovation development program of Nakhon Si Thammarat Rajabhat University, respectively. In addition, the instrument was designed based on a Theory of Plan Behavior (TPB), Technology acceptance model (TAM) , UTAUT models and existing literature review about basic understanding of ICT, knowledge of ICT for health information and behavioral intention. The internal consistency (Cronbach's alpha) reliabilities of the variables after composite scores have been calculated. Cronbach's alpha was computed for each variable to test the internal consistency and reliability of three variables used in this study. According to Hair et al , a Cronbach' alpha value of more than 0.6 should be obtained for an item to be reliable and can be accepted. There three variables are basic knowledge of ICT is independent variable the internal consistency results of this variable, comprising 10 items and present the Cronbach's alpha value is .751. the behavior intention comprising ten items and shows the Cronbach's alpha value is .726. the dependent variable is ICT adoption for health information comprising ten items and shows the Cronbach's alpha value is .747.

A. Sample Size and Sampling Techniques

This study used multi-stage and selected the sample group from eight provinces in the south of Thailand these being: Songkhla, Phatthalung, Satun, Krabi, Pang Nga, Trang, Nakhon Si Thammarat and Surat Thani. The sample group came from people living in rural areas from eight provinces above and divided into 32 sub-districts. The sample size and sampling techniques were conducted using the Taro Yamane formula for social and behavioral researches (Cochran, 1963).

The following steps were employed in choosing the respondents and sampling techniques.

B. Procedure and Data Collection

This study used a quantitative research method to collect data from people from rural areas in the south of Thailand. The study used the multi-stage method to design and select the sample population. The sample population live in eight provinces: Songkhla, Phatthalung , Satun, Krabi, Pang Nga, Trang, Nakhon Si Thammarat and Surat Thani. Ten research assistants visited each province and distributed 100 questionnaires for each province. The research assistants visited the district and sub districts of each province and collected data from people in these areas. They explained the purpose for collecting data if they did not understand the questions. The respondents returned the questionnaires in approximately 30 minutes. In this process, the study was concerned about ethical considerations, thus the detail of the data would be confidential and the assistants had to respect people in every place that they visited. A total of 550 questionnaires were distributed and 87 percent completed.

III DATA ANALYSIS

A process of data analysis was used to test the data based on the research questions and original hypotheses. The statistical analyses were conducted to test the two parts of the data. The first part was used to test for regression analysis consisting of simple regression analysis and multiple regression analysis. The second part was used to test for hierarchical analysis for testing the moderator variables.

A. **Descriptive Analysis**

The descriptive analysis describes the general statistical description of variables in the study such as demography of the respondents, the means, standard deviation, minimums and maximums for the independent and dependent variables. The data was collected from the sample of the respondents in rural communities of eight provinces of Thailand. The data collected was answered by all the respondents.

Most of the participants (232) are female (58.00%) and 168 are male (42%). Age range between 15-24 years at 28 percent, between 25-34 years 29 percent. The age range between 35-49 years is 28.2 percent and those aged over 50 years is 14.8 percent.

The education level can be described as follows. 16.5 percent graduated from primary school, while 13 percent graduated from secondary school. 30.8 percent graduated from high school, and 30.2 percent graduated with a bachelor degree. 3.5 percent graduated at master degree and 6 percent education unknown.

The respondents´ occupation is as follows. 20 percent are farmers and 16.8 percent are officers. While 10.5 of the respondents are officials and 7 percent are fishermen. In addition 5.8 percent are in business, while 40 percent of the respondents have other occupations such as gardeners, house keepers and those with no occupation.

With regard to income 34 percent earn a salary between 10,000 to 19,999 baht per month. While 29.7 percent have a salary between 5,000 to 9,999 baht and those respondents with a salary less than 5,000 are 22.5 percent. On the other hand, the respondents earning between 20,000 to 29,999 baths are 7.8 percent and 3 percent have an income between 30,000 to 39,999 baht. Only 3 percent of the respondents earn more than 40,000 per month.

B. **Results of the study**

This study used a questionnaire to assess the basic knowledge of ICT and used a survey method to collect data from 481 people in rural areas of eight provinces. The purpose of this assessment was to learn the basic understanding of using ICT from people such as using ICT, knowing about ICT and the frequencies of using ICT. The descriptive analysis can be described as table 1.

Table 1 Basic Understanding of ICT

Items Description	Most answers	Percentage
1. The meaning of ICT	Yes	91.7
2. Kinds of ICT that people know about	Mobile phone	85.2
3. Do people have ICT equipment?	Yes	96.9
4. Type of ICT that people have	Mobile phone	91.5
5. Type of ICT that people use	Mobile phone	77.5
6. Amount of time used	<1 hour	49.7
7. Purpose of using ICT	Searching information	62
8. Application	Facebook	49.3
9. Channel for accessing health information	Facebook	54.9
10. Where ICT is used	House	78

Table 1 shows the basic knowledge of ICT from people in rural communities and can be explained as follows. 91.7% know the meaning of ICT, while the kind of ICT that people used are mobile phones at 85.2 %. Most people access ICT via a mobile phone at 91.5%, and always using a mobile phone at 77.5%. People using ICT on mobile phone for searching information is at 62%. The application program that they used is Facebook (49.3%). The channel used for ICT to search information through Facebook at 54.9% and they always use at home 78%. Therefore, most people know about ICT and always use a mobile phone for searching health information from their home.

C. **Hypotheses testing**

This hypothesis is about behavior intention in health information and ICT adoption for health information. The study used a simple regression, to test the hypotheses.

Hypothesis 1: Behavioral intention in health information will have a significant positive influence on usage.

Table 2 simple regression analysis examining predictors of behavior intention in health information will have a significant positive influence on usage

Variable Constant	R	R^2	SEE	T	Sig	Durbin watson
Behavior Intention	.648	.420	.633	18.61	.000	1.698

The result from Table 2 shows the behavior intention in health information would have a significant positive influence on usage of ICT adoption. The simple regression coefficient (R) was .648 and multiply R (R^2) was .420. The value of t was 18.61 ($p<.05$).Durbin-Watson being 1.698 indicated that there was no errors in the variables. This hypothesis can

be explained that the behavioral intention of people had a positive influence on using ICT for health information as 42%.

Table 3 simple regression analysis examing predictors of behavioral intention in health information will have a significant positive influence on usage

Model	β	Beta	T	Sig	ViF
(Constant)	1.695	.096	17.59	.000	
ICT adoption for health information	.603	.032	.648	.000	1

Table 3 shows the coefficient of predictors in the best fit model and collinearity statistics. With the tolerance statistics and VIF equal to 1.00 and the B and Beta coefficients (B=.603, Beta = .648) were stable in the ICT adoption for health information

IV DISCUSSION

The results of this study show that the basic knowledge of ICT among people in the rural area. The basic knowledge of ICT is important for them to access health information. This study shows the basic knowledge of ICT as following. Most people in rural area know the meaning of ICT and they use mobile phone to communicate between friends.

Almost people have ICT equipment such mobile phone because the price of mobile phone is lower than computer or laptop. In the rural area living cost each important, since some people graduated as primary school and they low income. In addition, amount of time used is less than one hour because of work. They use ICT as mobile phone to search information and use Facebook for chatting and sometime used Facebook to search about health information because it is easy for them to learn and now Facebook is the most famous in Thailand. However, people used ICT at their home.

People have positive influence to adopt ICT for searching health information because it quite easy and it is basic for learning ICT by themselves. However, people in rural area confront the problem of Internet broadband and sometime they cannot connect to the Internet. Therefore, mobile phone is a channel for them to learn and use ICT. People accepted to use ICT for health information because Thai government have promoted to people about how to care themselves.

V CONCLUSION

This study emphases on the basic knowledge of ICT for health information in the south of Thailand. This paper used a survey questionnaire to collect data from people in rural area from eight provinces in the south of Thailand. Most people in each province live out of municipality and far the urban about 100 kilometer. The results show most people know about ICT and use ICT as mobile phone more than using computer or laptop because the prices of mobile is inexpensive. Then they can use and learn about information and news from mobile phone. However, the problems about the Internet are not cover all areas then the government should provide the network for all area of Thailand. Then they can learn more about health information and use ICT for searching information about health information to aware them from the disease and have good health like in Thailand call smart health in Thailand.

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